

(c) Remarks

This application has been reviewed in light of the Office Action dated September 26, 2007. Claims 1-9 and 31-45 are presented for examination. Claims 10-30 and 46-48 have been canceled, without prejudice or disclaimer of subject matter, as nonelected. Claim 1 has been amended to define still more clearly what Applicants regard as their invention. Claims 2-9 and 35-37 have been amended as to matters of form only, to ensure consistency of terminology, and/or correct claim dependency. No change in scope is either intended or believed effected by at least these latter changes. Claim 1 is in independent form. Favorable reconsideration is requested.

Claims 2 and 3 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite in use of the term “irregularity”. The claims have been carefully reviewed and amended as deemed necessary to ensure that they conform fully to the requirements of Section 112, second paragraph, with special attention to the points raised in paragraph 6 of the Office Action. Specifically, claims 2 and 3 have been amended to change “irregularity” to --a concave portion--. See Figs. 2b and 4b, for example. It is believed that the rejection under Section 112, second paragraph, has been obviated, and its withdrawal is therefore respectfully requested.

Claims 1-4, 31-41 and 43-45 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,564,403 (Hayafuji ‘403). Claims 1-5 and 31-34 were rejected as anticipated by U.S. Patent No. 6,432,758 (Cheng ‘758). Claims 6-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng ‘758. Claim 42 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayafuji ‘403. The grounds of rejection are respectfully traversed.

In amended claims 1-9 and 31-45, it is recited stated that the “specific region” is an amorphous region. Further, it is recited that the melting step is performed so that a single crystal grain or a single cluster remains unmelted in the specific amorphous region (as more precisely stated in claim 5).

In Hayafuji et al. (US 4,564,403), the film formed in region 106 is polysilicon (column 7, lines 49-51). Polysilicon is a material of multiple small silicon crystals. In contrast, the film formed in the present invention is amorphous, hence it is different. An amorphous film has a random, continuous network structure.

In Cheng et al. (US 6,432,758), on the other hand, the melting step is not performed so that a single crystal grain or a single cluster remains unmelted in the specific amorphous region, as apparent from the abstract setting forth that the partially melted amorphous silicon is used as crystallization seeds. Specifically, as seen in Cheng, Fig. 6, two regions 206 act as seeds and crystallization after melting proceeds toward the direction of the black arrow. Accordingly, two crystal grains growing from either sides will collapse to form a grain boundary at the central position of region 205. See Figs. 11 and 12 of Cheng.

In contrast, the melting step of the present invention is performed so that a single crystal grain or a single cluster remains unmelted in the specific amorphous region. Therefore, the specific region of the present invention does not contain a grain boundary as found in Cheng et al. Accordingly, the present method provides a specific region with an improved crystalline property.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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